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SUBJECT : Obtaining Collateral Data to Evaluate Photographic Systems

- h. Atmospheric conditions (haze, smoke, clouds, wind velocity, etc.)
- i. Dimensions (object sizes and shape)
- j. Altitude of aircraft, vehicle

This type of information would be similar to the test that was initiated by Wright-Patterson AFB for photography performed through most of the atmosphere using foreshortened gray scale (three step) resolution targets with associated instrumentation. It is not suggested that only such aforementioned targets are to be used but that almost any object recorded on film can render the necessary reflectance, gray scale and dimensional characteristics needed for the study. Examples would be sidewalks, roofs of buildings, fields, etc. In some of the latest missions it would have been possible to set up this type of research program in cities and environs covered to measure the desired data. This program, when associated with orbital missions, would provide valuable data which could be applied to processing, film evaluation and to further research into the development of emulsions and camera systems. High altitude and orbital missions could be scheduled using the same types of film, cameras etc. to facilitate correlation of "ground truth" statistics obtained. This data then, could be compared to laboratory results to ascertain parameters which would be taken into consideration when missions are scheduled. As the situation now exists, the only unknown characteristics are terrestrial factors which can be determined from this type of program.

2. In order to ascertain the information content from this type of program, it will be necessary to have a photointerpretation group review and equate the image characteristics given for existing environmental and

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systems parameters. From this study, the significance of the various factors can be evaluated and a pre-determination of expected photographic quality can be made. The extensive study of photography and environmental conditions will, however, necessitate a long range program with orbital photography, high altitude photography and environmental condition factors recorded simultaneously.

3. Before this program can be advocated, it is essential that a survey be made of the efforts that have already been made by the various governmental and commercial agencies. The programs initiated by Westover, Rome, and Wright-Patterson should be investigated and in addition, that pursued by the [REDACTED] should yield an excellent background for any attempt for orbital studies. It is realized that this study may take the cooperation of NPIC, the Air Force and possibly commercial concerns to accomplish a task that is this encompassing.

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